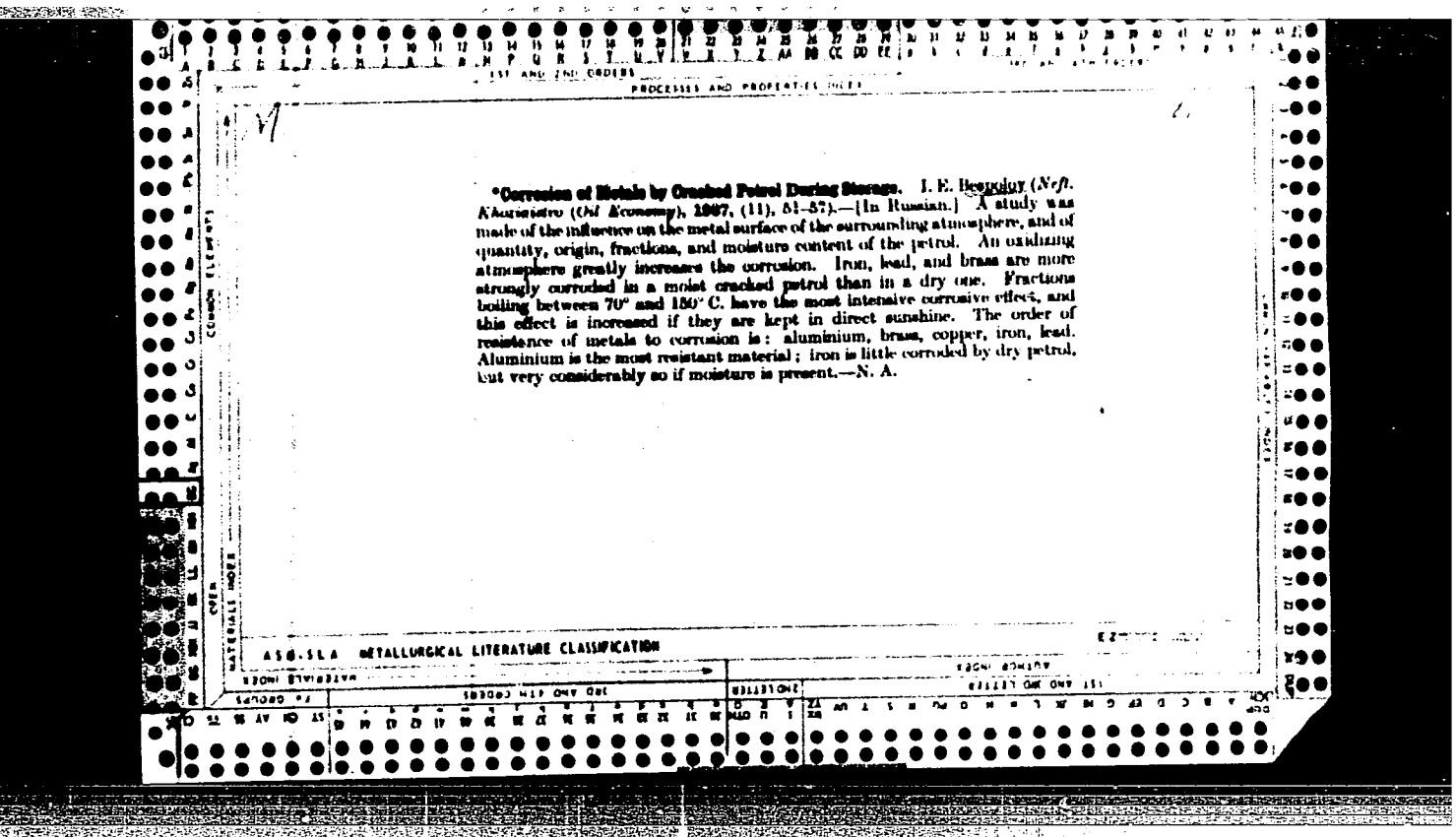
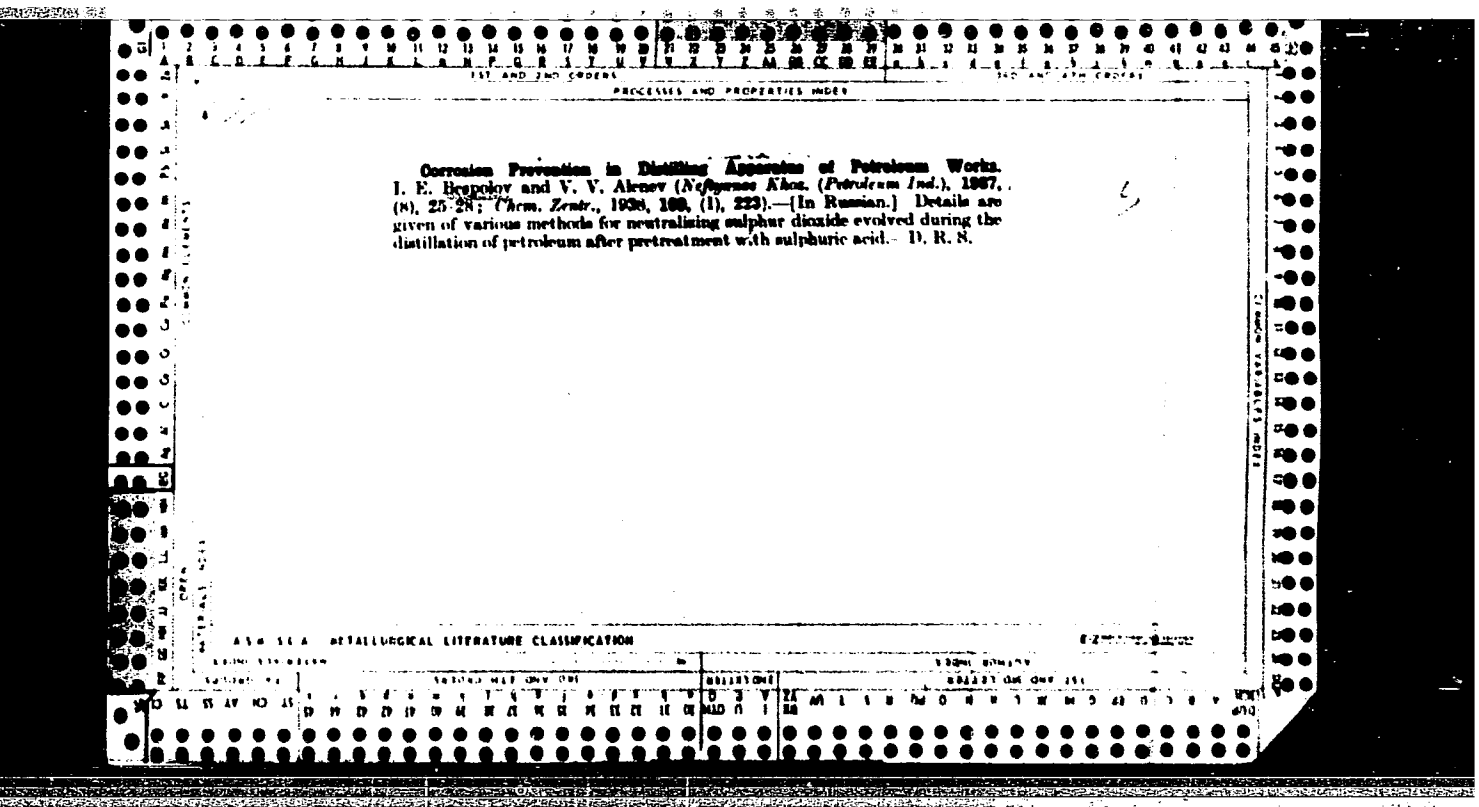
Combating corrosion in petroleum-rectifying and -distilling equipment. I. E. Bespolov and V. V. Alenev. *Neftyanoe Khoz.* **18**, No. 8, 25-8(1937); *Chimie & industrie* **39**, 1088.—Treatment of light cracked gasoline with H_2SO_4 gives rise to polymers which remain in soln. in the neutralized gasoline. Steam distn. produces an acidity equiv. to 0.00% SO_2, which increases to 0.13% if the refined gasoline is rectified with steam with preliminary heating. The resultant corrosion of equipment can be avoided by neutralizing the SO_2 evolved by adding NaOH (0.1%) to the contents of the still and by injecting NH_3 gas (0.04-0.05%) into the vapor in the column. In com. practice it is generally sufficient to add 0.2-0.1% NaOH to the contents of the still. A. P. Couture



***Corrosion of Metals by Cracked Petrol During Storage.** I. E. Beregoy (*Neft. Khozyaistvo* (*Oil Economy*), 1947, (11), 51–57).—[In Russian.] A study was made of the influence on the metal surface of the surrounding atmosphere, and of quantity, origin, fractions, and moisture content of the petrol. An oxidizing atmosphere greatly increases the corrosion. Iron, lead, and brass are more strongly corroded in a moist cracked petrol than in a dry one. Fractions boiling between 70° and 150° C. have the most intensive corrosive effect, and this effect is increased if they are kept in direct sunshine. The order of resistance of metals to corrosion is: aluminium, brass, copper, iron, lead. Aluminium is the most resistant material; iron is little corroded by dry petrol, but very considerably so if moisture is present.—N. A.



PROCESSES AND PROPERTIES INDEX

Corrosion Prevention in Distilling Apparatus of Petroleum Works. I. E. Bregolov and V. V. Akmov (*Neftyanoe Khoz.* (*Petroleum Ind.*), 1937, (8), 25–28; *Chem. Zentr.*, 1938, 109, (1), 223).—[In Russian.] Details are given of various methods for neutralising sulphur dioxide evolved during the distillation of petroleum after pretreatment with sulphuric acid.—D. R. S.

A.S.M. S.C.A. METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

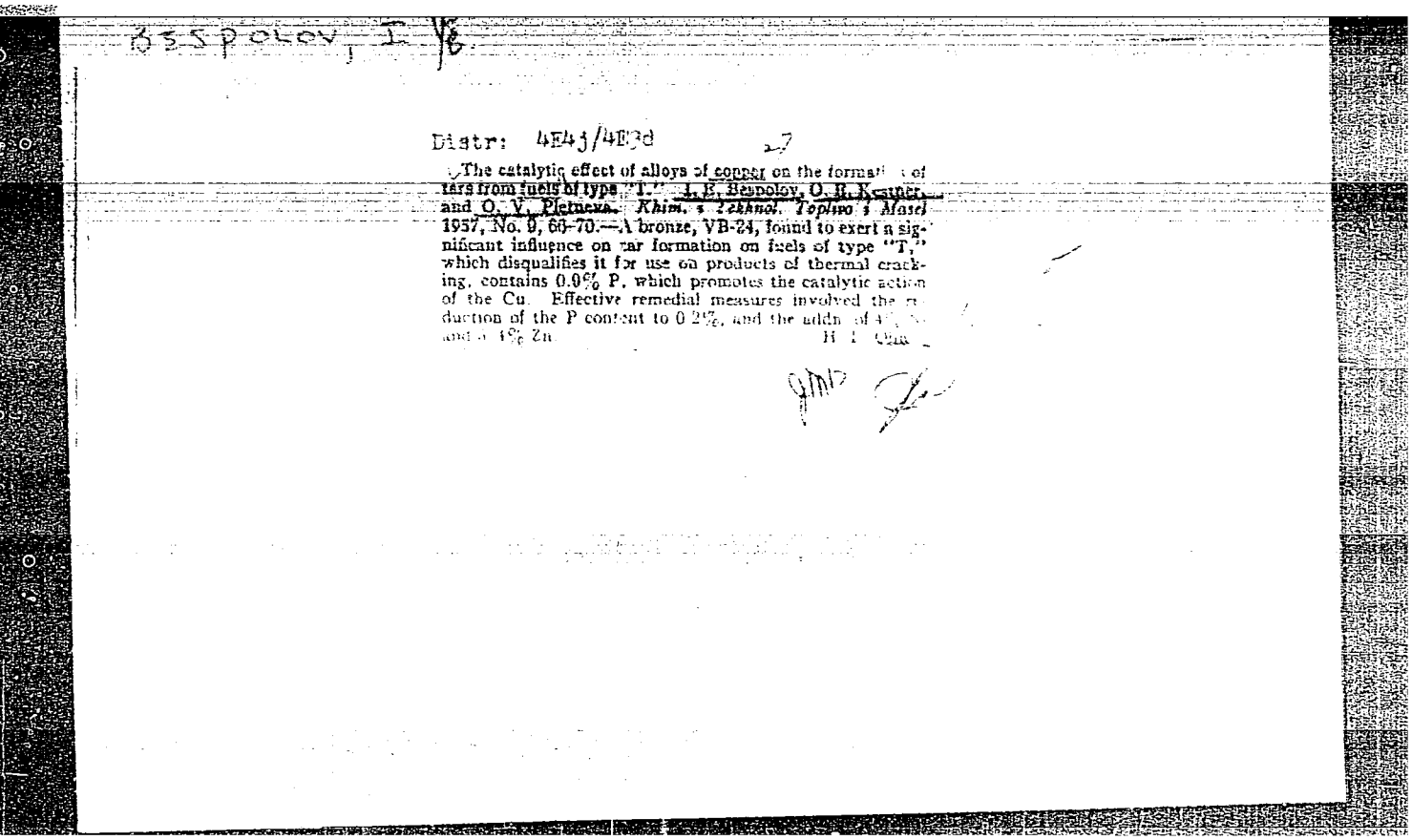
CA

22

Preparation of bright pyrolyzed resins from pyrolyzed petroleum products. I. F. Bespalov. *Neftyanoe Khoz.* 1938, No. 11, [illegible]. The best (lightest) pyro-resins are obtained by using 4% of a 98% H_2SO_4, lighter fractions yielding a better product. Thus, by applying 8-10% of H_2SO_4 there can be obtained pyro-resins which can be used in the prepn. of oilcloth after the introduction of oil driers. Co oleate was found to improve the quality of the pyro-resins to such an extent as to produce absolutely white films. Oil drier "No. 12" also gives good results, although the color of the resins is not as satisfactory. Four % of it is added at a temp. not in excess of 80°. A mixt. of pyro-resins contg. 4% of oil drier "No. 12" and not less than 20% pyro-resins may replace pure oilcloth oil drier in the prepn. of light oilcloths. The ratio of pyro-resins may be increased when plasticizers (castor oil) are introduced. The expts. are described.

A. A. Boehtlingk

METALLURGICAL LITERATURE CLASSIFICATION



B55 Polov, I. V.

Distr: 4E4j/4E3d

The catalytic effect of alloys of copper on the formation of tars from fuels of type "T." I. F. Bespolov, O. R. Kuner, and O. V. Pletneva. *Khim. i Tekhnol. Topliv i Masel* 1957, No. 9, 66–70.—A bronze, VB-24, found to exert a significant influence on tar formation on fuels of type "T," which disqualifies it for use on products of thermal cracking, contains 0.9% P, which promotes the catalytic action of the Cu. Effective remedial measures involved the reduction of the P content to 0.2%, and the addn. of 4% Sn and 4% Zn. H. T. Chiu

11(4)

PHASE I BOOK EXPLOITATION SOV/2075

Akademiya nauk SSSR. Bashkirskiy filial, Ufa

Khimiya seraorganicheskikh soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh; [materialy III nauchnoy sessii] (Chemistry of Sulphur Organic Compounds Contained in Petroleum and Petroleum Products; [Papers of the Third Scientific Session]) Moscow, Izd-vo AN SSSR, 1959. 376 p. 2,000 copies printed. Errata slip inserted.

Editorial Board: R.D. Obolentsev (Resp. Ed.) Doctor of Chemical Sciences; G.D. Gal'pern, Doctor of Chemical Sciences; Ya. B. Chertkov, Doctor of Technical Sciences; V.V. Panov, Candidate of Technical Sciences; and V.P. Rozhdestvenskiy, Candidate of Chemical Sciences; Ed. of Publishing House: I.I. Krasavin; Tech. Ed.: T.P. Polenova.

PURPOSE: This book is intended for chemists, chemical engineers, and technicians specializing in the chemistry of petroleum.

COVERAGE: The book is a collection of papers presented at the Third Scientific Session on the Chemistry of Organic Sulfur- and Nitrogen Compounds Contained in Petroleum and Petroleum Products. The scientific session was held in Ufa, June 3-8, 1957. The book consists of six sections: 1) Synthesis, characterization, and analysis of organic sulfur compounds; 2) Separation and composition of organic sulfur compounds contained in petroleum and petroleum products; 3) Transformation of organic sulfur compounds by thermal catalysis; 4) Corrosive properties of and tar formation in sulfur-containing petroleum and petroleum products; 5) Uses of organic sulfur compounds and hydrogen sulfide; 6) Physiological properties of organic sulfur compounds. No personalities are mentioned. There are 315 references, of which 179 are Soviet, 118 English, 5 French, 12 German, and 1 Czech.

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Chemistry of Sulphur Organic Compounds (Cont.) SOV/2075

PART IV. CORROSIVE ACTIVITY AND TAR FORMATION OF SULFUR-CONTAINING PETROLEUM AND PETROLEUM PRODUCTS

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29042
S/081/61/000/018/022/027
B101/B147

11.0132

AUTHORS: Bespolov, I. Ye., Pletneva, O. V., Kolotushkina, Ye. V., Belyayeva, G. P., Malysheva, M. S.

TITLE: Corrosiveness of fuels produced from sulfurous petroleums

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 18, 1961, 439, abstract 18M187 (Sb. "Khimiya seraorgan. soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh", M., AN SSSR, 1959, 276 - 283)

TEXT: The corrosiveness of the fuels TC-1 (TS-1) and T-2 (T-2) was examined. They contained 0.002 - 0.05% of mercaptan sulfur. It was found that the corrosion of copper and bronze BB-24 (VB-24) in fuels obtained from sulfurous petroleums is chiefly due to the presence of mercaptans. Fuels containing no mercaptans hardly corrode these metals. The presence of elementary sulfur of up to 0.002% in mercaptan-containing TS-1 fuel, while not increasing the corrosiveness of the latter toward VB-24 bronze, increases it markedly toward copper. T-2 fuel, which has a wide fractional composition, corrodes copper more strongly than does TS-1 fuel.

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Corrosiveness of fuels...

This is explained by the considerably higher corrosiveness of low-molecular mercaptans contained in the 60 - 130°C fraction of T-2 fuel. The principal cause of the formation of gelatinous deposits on cadmium-plated parts in the fuels concerned is the moistening of the latter in the presence of mercaptan sulfur. On an increase of the content of the latter to $>0.01\%$ in the fuel, the amount of deposits increases significantly. Chromate passivation of cadmium-plated parts raises their resistance to the corrosive action of mercaptans, and altogether prevents deposits from forming in TS-1 and T-2 fuels containing $\leqslant 0.01\%$ of mercaptan sulfur. As cadmium-plated parts of fuel pumps are most responsive to the action of mercaptans, the content of mercaptan sulfur in TS-1 and T-2 fuels should be $\leqslant 0.01\%$. [Abstracter's note: Complete translation.]

Card 2/2

BESPOLOV, I.Ye.; KOLOTUSHKINA, Ye.V.

Deposit formation on the cadmium-plated parts of fuel pumps under the action of mercaptans contained in jet fuels. Khim.sera-i azotorg. soed.sod.v neft.i nefteprod. 3:475-481 '60. (MIRA 14:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo topliva.
(Jet planes—Fuel) (Corrosion and anticorrosives) (Thiols)

S/065/63/000/004/004/004
A057/A126

AUTHORS: Bespolov, I.Ye., Guseva, A.V., Timonicheva, O.I.

TITLE: On the dependence between the value of the heat-transfer coefficient and the lower heat of fuel combustion

PERIODICAL: Khimiya i tekhnologiya topliv i masel, no. 4, 1963, 64 - 65

TEXT: The authors determined a linear function between the heat-transfer coefficient and the lower heat of combustion of reactive fuels which is expressed by the equation: $Q_N = 9939 + 0.0615 \cdot K$ kcal/kg (Q_N = the determined combustion heat of the fuel, K = heat-transfer coefficient). The calorific capacity of industrial samples of reactive fuels calculated by this equation are practically the same as the experimentally determined values. The heat-transfer coefficient is calculated from data on density and the aniline point of the fuel, thus no special apparatus are necessary. The heat-transfer coefficients, heat of combustion, and calorific capacity of the Soviet reactive fuels of TC -1 (TS-1), T -1 (T-1), T -2 (T-2), and T-5 (T-5) grades and foreign fuels JP-1, JP-4, and ATK (aviation turbine kerosene) were determined. The results obtained

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On the dependence between the value of the S/065/63/000/004/004/004
A057/A126

could be used in continuous control of technological devices to exchange the complicated determination of the combustion heat with the determination of the heat-transfer coefficient. The method of determining the combustion heat by means of the heat-transfer coefficient could be introduced as a standard test method. There are 2 tables and 1 figure.

ASSOCIATION: VNII NP

Card 2/2

L 14366-63 EPF(c)/EWT(m)/HDS AFFTC/ASD/APGC Pr-4 RM/MR

ACCESSION NR: AP3004534 S/0065/63/000/008/0049/0054

AUTHOR: Bushuyeva, Ye. M.; Bespolov, I. Ye.

TITLE: Effect of the fractional and hydrocarbon composition of [jet] fuels on thermal stability

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 8, 1963, 49-54

TOPIC TAGS: jet fuel, thermal stability, thermal-oxidative stability, gum, sediment, oxidation product, aromatics content, solubility, hydrocarbon composition, fractional composition, jet-fuel thermal stability, jet-fuel thermal-oxidative stability, jet-fuel gum, jet-fuel sediment, jet-fuel oxidation product, jet-fuel aromatics content, oxidation-product stability, jet-fuel hydrocarbon composition, jet-fuel fractional composition

ABSTRACT: The effects of hydrocarbon and fractional composition on the thermal [-oxidative] stability of jet fuels have been studied. The following fuels were tested: 200—250, 250—300, and 300—350C fractions of 1) catalytically cracked gas oil, 2) straight-run fuel from Romashkino crude, and 3) hydrofined pyrolysis green oil; 250—300C fractions of hydrogenate from Romashkino crude, and of hydrofined catalytically cracked gas oil; liquid sulfur dioxide-raffinates and

Card 1/3

-extracts from fuels 1 or 2; synthetic mixtures containing 0—100% extract of the 250—300C fraction of fuel 1 in a paraffinic-naphthenic fuel obtained from the 250—300C fraction of fuel 2; and pure naphthenic fuel [unspecified]. The thermal-stability determination consisted in bubbling air at 3 l/hr for 3 hr through 100 ml of hot fuel at 150—300C and then determining gums and sediments. Tests were arranged so as to permit correlation of the amount of oxidation products with the hydrocarbon composition of the fuels or synthetic mixtures. For a given boiling-point range, sediments were found to increase in the order fuel 3 < fuel 1 < fuel 2. Sediments were lowest in the fractions with the highest aromatics content. On the other hand, sediments were virtually absent from paraffinic-naphthenic or pure naphthenic fuels. The total oxidation products, especially gums, increased with an increase in boiling-point range. Sediments were greatest at 200C, decreasing at higher test temperatures. Testing of the synthetic mixtures at 200C revealed that aromatics-free fuel (0% extract) was completely stable (virtually no oxidation products); with a rise in aromatics content, total oxidation products increased. Sediments, however, attained a maximum at about 10% aromatics and dropped with further increase in aromatics content. That this drop in sediments is due to oxidation-product solubility in fuel of high aromatic content was proven by the following experiment. When a synthetic mixture which had been oxidized and then freed of visible sediments was diluted with the

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L 14366-63
ACCESSION NR: AP3004534

paraffinic-naphthenic fraction, sediments precipitated. Orig. art. has: 6 tables.

ASSOCIATION: VNII NP

SUBMITTED: 00 DATE ACQ: 27Aug63 ENCL: 00

SUB CODE: FL NO REF SOV: 007 OTHER: 005

Card 3/3

L 13263-66 EWT(m)/T WE

ACC NR: AP6003432 SOURCE CODE: UR/0065/66/000/001/0045/0048

AUTHOR: Bushuyeva, Ye. M.; Bespolov, I. Ye.

ORG: VNII NP

TITLE: Effect of the structure of aromatic hydrocarbons on the thermal stability of jet fuels

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 1, 1966, 45-48

TOPIC TAGS: jet fuel, fuel thermal stability, aromatic hydrocarbon, ~~aromatic hydrocarbon structure~~

ABSTRACT: The effect of the structure of fuel aromatic hydrocarbons (AH) on the thermal stability (TS) of the fuels was studied with various boiling point fractions of Romashkino crudes, catalytically cracked gas oil, and Baku T-5 jet fuel. The AH were divided, according to their refractive index, into three groups which approximately corresponded to mono-, di-, and polycyclic compounds. These groups were defined as light, medium, and heavy AH, respectively. The TS of individual fractions was estimated from the amount of deposit and gums formed at 200C after sparging air through a fuel layer for 3 hr at 3 l/hr. The results given for Baku T-5 fuel in Table 1 indicate that organoelemental (especially sulfur) compounds lower TS, and that the structure of AH strongly affects TS. The TS of AH groups and individual AH was studied in mixtures of 5, 15, and 25% AH with a paraffin-naphthene fraction which proved to be thermally stable under the conditions of the experiments. It

Card 1/2 UDC: 665.521.3:661.715.7

L 13263-66

ACC NR: AP6003432

Table 1. Characteristics of narrow fractions of T-5 Baku fuel

Boiling ranges of fractions, °C	Aromatic hydrocarbons, %			Sulfur	Deposit mg/100 ml*	Gums mg/100 ml*
	Light	Medium	Heavy			
190—225	4,8	4,8	—	0,016	17,0	167
225—253	6,0	9,0	—	0,040	47,5	170
253—278	6,3	12,1	—	0,055	13,7	80
278—300	7,8	7,0	2,2	0,070	17,0	105
300—324	6,5	4,8	3,9	0,076	15,0	87

* After heat treatment

was shown that: 1) light AH exhibit higher TS than medium and heavy AH; 2) increasing the cyclicity of the AH sharply lowers the TS of the mixtures; 3) alkyl derivatives of naphthalene and tetrahydronaphthalene form more deposits than naphthalene; and 4) the greatest amounts of deposits and gums are formed in mixtures containing the tetramethylnaphthalene fraction, or 1, 2, 3, 4-tetrahydronaphthalene. Orig. art. has: 3 tables.

[BO]

SUB CODE: 21/ SUBM DATE: none/ ORIG REF: 009/ OTH REF: 001/ ATD PRESS: 4185

Card 2/2

ACC NR: AP7000773 (A,N) SOURCE CODE: UR/0065/66/000/012/0044/0046

AUTHOR: Bushuyeva, Ye. M.; Bespolov, I. Ye.

ORG: VNII NP

TITLE: Effect of alkane and cycloalkane hydrocarbons on the thermal-oxidative stability of jet fuels

SOURCE: Khimiya i tekhnologiya topliv i masel, no. 12, 1966, 44-46

TOPIC TAGS: jet fuel, thermal oxidative stability, sediment, gum, fuel composition

ABSTRACT: A study has been made of the effect of normal alkanes, isoalkanes, and naphthenes on the thermal-oxidative stability of jet fuels. Paraffin-naphthene fractions isolated by silica gel adsorption from various straight-run and secondary treatment petroleum fractions and synthetic naphthene and isoalkane fractions boiling close to the boiling range of jet fuels were used. The aromatic constituent was bicyclic aromatic hydrocarbons isolated by adsorption from the 250—330C fraction of hydrofined green oil. Thermal-oxidative stability measurements were carried out at 200C for 3 hr with air sparging through the sample at the rate of 3ℓ/hr, using equipment and procedure described earlier. The thermal stability criterion was the amount of sediments and gums (mg/100 ml fuel) formed. It was found that none of the nonaromatic constituents form sediments in the neat state. Addition to the nonaromatic constituents of 15% aromatics, however, sharply lowered

Card 1/2 UDC: 665.521.3

ACC NR: AP7000773

their thermal stability. The structure of the nonaromatic constituent had a substantial effect on sediment formation: a mixture of 15% aromatics with iso-alkanes formed almost twice as much sediment as a mixture with naphthenes. This effect was attributed to the influence of structure on the degree of coagulation of the oxidation products. To test this hypothesis, experiments were carried out involving vacuum stripping of the mixtures, treatment of the residue with isopentane, and drying to constant weight of the resulting precipitate. It was found that regardless of the nonaromatic-hydrocarbon constituent in the mixture, the amount of precipitate was the same. This was attributed to the gums and sediments being oxidation products of the aromatic hydrocarbons with the non-aromatics acting as a medium. This explanation was confirmed in experiments involving oxidation of 1/1 mixtures of two nonaromatic constituents with or without 15% aromatics added. It was shown that like the neat nonaromatic hydrocarbons, the two-constituent nonaromatic mixtures formed virtually no sediments. Sediment values for the two-constituent nonaromatic mixtures with 15% aromatics obeyed the principle of additivity. Orig. art. has: 1 table.

SUB CODE: 21/ SUBM DATE: none/ ORIG REF: 002/ ATD PRESS: 5108

Card 2/2

BESPOYASOV, A.V.

Boring mandrel. Mashinostroitel' no.6:22 Je '62. (MIRA 16:5)
(Drilling and boring machinery)

BESPROSKURNOV, G.G.

76-10-10/34

AUTHORS: Iofa, Z.A., Besproskurnov, G.G.

TITLE: A Study of the Mechanism of the Atmospheric Corrosion of Iron in the Presence of Sulphur Dioxide as Aggressive Agent (Issledovaniye mekhanizma atmosfernoy korrozii zheleza v prisutstvii sernistogo gaza kak agressora)

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 10, pp. 2236-2244 (USSR)

ABSTRACT: The corrosion of iron in an atmosphere containing sulphur dioxide is investigated. It is shown that the initial velocity of the corrosion increases with the increase of concentration at sulphur dioxide in air. A decrease of humidity reduces the corrosion velocity and the corrosion stops practically at a relative humidity of less than 65 - 70 %. It is shown that after 25 - 30 hours the corrosion forms a rust layer in humid air which retards this process: the greater the concentration of the sulphur dioxide in air is, the thicker is the rust layer which is formed during this time. It is shown that the corrosion which began in a completely pure humid air is continued, however, with lower velocity. The rust analysis carried out by means

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A Study of the Mechanism of the Atmospheric Corrosion of Iron in the Presence of Sulphur Dioxide as Aggressive Agent

of the radioactive sulphur isotope showed that in an atmosphere without oxygen (hydrogen and nitrogen) the ratio of the equivalent of sulphur to iron in the rust approaches to 0,33 and almost does not change with the corrosion time. The ratio is reduced with the time in the presence of oxygen. Conclusions are drawn on the process in the case of a corrosion in the atmosphere in the presence of sulphur dioxide. The corrosion takes place according to the electrochemical process under the humidity layer at the surface of the iron. The sulphuric acid produced in the case of a dissolution of SO_2 in this layer (cover) is the oxidizing agent which depolarizes the cathode reaction and is restored up to the sulphide ions. Through the occurring negative ψ_1-potential the sulphide ions also stimulate the anode reaction. The depolarization takes place in air by the oxygen of the cathode process and the oxidation of the bivalent iron to a trivalent one . Apparently the sulphide ions catalyze the last reaction. There are 7 figures, 4 tables, 16 Slavic references.

76-10-10/34

A Study of the Mechanism of the Atmospheric Corrosion of Iron in the Presence of Sulphur Dioxide as Aggressive Agent

ASSOCIATION: Moscow State University imeni M.V. Lomonosov
(Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova)

SUBMITTED: July 11, 1956

AVAILABLE: Library of Congress

Card 3/3

BESPROSKURNOV, G.G.

5(2); 21(5) PHASE I BOOK EXPLOITATION SOV/1900

Akademiya nauk SSSR. Komissiya po analiticheskoy khimii

Primeneniye radioaktivnykh izotopov v analiticheskoy khimii (Use of Radioactive Isotopes in Analytical Chemistry) Moscow Izd-vo AN SSSR, 1958. 366 p. (Series: Its: Trudy, t. 9 (12)) Errata slip inserted. 3,000 copies printed.

Resp. Ed.: I.P. Alimarin, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: A.F. Yermakova; Tech. Ed.: Z.V. Polyakova.

PURPOSE: The book is intended for chemists and chemical engineers concerned with work in analytical chemistry.

COVERAGE: The book is a collection of the principal papers presented in Moscow at the Second Conference on the Use of Radioactive Isotopes. The problems discussed at the Conference included coprecipitation, aging, and solubility of precipitates, determination of the instability constants

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of complex compounds, separation of rare earth metals, and ion-exchange chromatography. No personalities are mentioned. There are 351 references, 175 of which are Soviet, 33 German, 19 French, 8 Swedish, 2 Hungarian, and 2 Czech.

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YURKEVICH, Yu.N.; KESPROSKURNOV, G.G.

Tagged reagent technique for quantitative determination of element according to known additions. Trudy kom.anal.khim. 9:226-230 '58. (MIRA 11:11)

(Chemistry, Analytical--Quantitative)

S/137/62/000/001/236/237
A154/A101

AUTHORS: Shcherbakov, V. G., Yurkevich, Yu. N., Besproskurnov, G. G.

TITLE: Using the radioactive isotope of phosphorus P^{32} to test the colorimetric method of determining phosphorus in tungstic anhydride

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 13, abstract 1K84 ("Sb. tr. Vses. n.-i. in-t tverdykh splavov", 1960, no. 3, 37 - 43)

TEXT: The colorimetric method of determining P was tested by introducing the radioactive isotope P^{32} into tungstic anhydride and observing its behavior in the process of chemical analysis. It was established that the losses of P with the insoluble remainder are $<3\%$, and that $\sim 3\%$ of P is also lost with the WO_3. It was shown that the relative error is $<15\%$ when using this method to determine small amounts of P.

L. Vorob'yeva

[Abstracter's note: Complete translation]

Card 1/1

BESPROZVANA, S. Ya.

Observations on the growth and development of blue hybrid alfalfa on ash dumps. Zap. Sverd. otd. VBO no.3:149-151 '64 (MIRA 18:2)

APPROVED FOR RELEASE: 06/08/2000 CIA-RDP86-00513R000205120002-9"

BESPROZVANNAYA, A. S.

PHASE I BOOK EXPLOITATION SOV/5336

Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po provedeniyu Mezhdunarodnogo geofizicheskogo goda. V razdel programmy MGG: Ionosfera

Issledovaniya ionosfery (Ionospheric Research) Moscow, Izd-vo AN SSSR, 1960. 112 p. (Series: Its Sbornik statey, no. 5) 2,000 copies printed.

Resp. Ed.: G.N. Gorbushina, Candidate of Physics and Mathematics; Ed.: A.D. Podol'skiy; Tech. Ed.: T.V. Polyakova.

PURPOSE: This publication is intended for geophysicists, meteorologists, and communications specialists.

COVERAGE: This collection of 12 articles on the ionosphere, published by the Soviet IGY Committee, presents some of the results of vertical soundings made at 23 Soviet stations in the period 1957-1959. Individual articles deal with the geographic distribution of ionospheric absorption and its relation to solar flares and magnetic storms, the altitudinal distribution of ionization calculated with electronic computers, and ionospheric observations in the Arctic and Antarctic. An English resume accompanies each article. No personalities are mentioned. References follow individual articles.

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9,9100

S/169/61/000/012/088/089
D228/D305

AUTHOR: Besprozvannaya, A. S.

TITLE: Morphology of ionosphero-magnetic disturbances in high latitudes

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 12, 1961, 27, abstract 12G218 (V sb. Probl. Arktiki i Antarktiki. no. 5. L., Morsk. transport, 1960, 47-52)

B

TEXT: Statistical investigations of ionospheric disturbances in the upper and lower ionosphere have been conducted from the data of the Bukhta Tiksi ionospheric station for 1946-1955. The number of hours on days with anomalous absorption in the ionosphere (a full blackout or $f_{min} \geq 3.5$ mc/s) is taken as the index of disturbance of the lower ionosphere. The author divides the disturbances into two types: type FD--disturbances in the

Card 1/2

S/169/61/000/012/088/089
D228/D305

Morphology of...

F2 region accompanied by absorption in the lower ionosphere: and type F--disturbances in the F2 region when disturbances in the lower ionosphere are absent. The patterns of the change in the frequency of the appearance of both types are considered: an annual variation, a 27-day recurrence, and an 11-year cycle. It is established that the type-F disturbances are related to magnetic storms with sudden outbreaks and that they have common regularities with them. Type-FD disturbances, however, are related to magnetic storms with gradual outbreaks. The geographical distribution of the magnetic activity during F- and FD-type ionospheric disturbances is examined. 7 references. [Abstracter's note: Complete translation.]

Card 2/2

28425
S/169/61/000/007/092/104
A006/A101

9,9100

AUTHOR: Besprozvannaya, A.S.

TITLE: On the problem of evaluating the disturbances of F2 layer in high latitudes

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 7, 1961, 39, abstract 7G274 (V sb. "Issled. ionosfery, no. 5", Moscow, AN SSSR, 1960, 81 - 92, English summary)

TEXT: The author discusses problems which are connected with the evaluation of disturbances of the F2 layer in high latitudes by calculating deviations of f_0F2, as it is done in middle latitudes. Peculiarities of high-latitudinal ionosphere are analyzed. When analyzing disturbances of the F2 region, great importance is attached to the impossibility of using median values as characteristics of the normal ionization level in the F2 layer, and to the abnormally high ionization in layer F2 during the winter months under conditions of darkened ionosphere, whose nature differs from ionization of illuminated ionosphere.

The author's summary

[Abstracter's note: Complete translation]

Card 1/1

28423
S/169/61/000/007/090/104
A006/A101

9,9100

AUTHORS: Driatskiy, V.M., Besprozvannaya, A.S.

TITLE: The ionospheric condition in the circumpolar region

PERIODICAL: Referativnyy zhurnal. Geofizika, no. 7, 1961, 37, abstract 7G260 (Tr. Arkt. i Antarkt. n.-i. in-ta, 1960, 223, 98 - 109)

TEXT: The authors describe peculiarities of the ionosphere observed at the drifting station "Severnyy Polyus" (North Pole) 3 during the period from May 15th, 1954 to April 14th, 1955. The equipment is described. Regular layers E and F1 are characterized by a small amplitude of the diurnal run. During the polar day the layers exist around-the-clock. Frequently a triple magneto ionic splitting is observed in layers E, F1 and F2. Layer E_s in the circumpolar region is transparent in the majority of cases and does not reveal delay and diffusion. The screening E_s layer with 8 - 10 fold reflections appears only during single hours of the summer and equinoctial months. E_s appears most frequently during the winter and autumn. The F2 layer in the circumpolar region is considerably different from the middle-latitude layer. The seasonal run of f_oF2 has a summer maximum and winter minimum. During the summer the diurnal changes

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28423
S/169/61/000/007/090/104
A006/A101

The ionospheric condition in the circumpolar region

of f_oF2 are low, and very high during the winter. It is supposed that the F2 layer consists during the winter of sporadic formations arising as a result of ionization by corpuscular radiation. Abnormal absorption in the circumpolar region was observed very rarely. The probability of the appearance of abnormal absorption and the level of magnetic disturbance at station SP-3 are considerably lower than at the Tikhaya Bay and Tiksi Bay stations, which are situated nearer to the maximum of the aurora polaris zone.

T. Kerblay

[Abstracter's note: Complete translation]

Card 2/2

BESPROZVANNAYA, A. S., ~~FUSHKOV, N.~~ V.

" Abnormal Polar-cap Absorption Associated with Strong Chromospheric Flares for the Period 1938-1959."((I-2-6)).

report submitted for the Intl. Conf. on Cosmic Rays and Earth Storm (IUPAP) Kyoto, Japan 4-15 Sept. 1961.

a034

S/194/62/000/006/160/232
D201/D308

9,9130

AUTHOR: Besprozvannaya, A.S.

TITLE: Anomalous absorption of short radio-waves in arctic ionosphere

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1962, 27, abstract 6Zh184 (V sb. Ionosfern. issledovaniya, no. 6, M., AN SSSR, 1961, 58-74)

TEXT: Statistical processing of data on anomalous absorption of radiowaves, as obtained at stations situated in the arctic: Tikhaya Bay, Tiksi Bay, Kheys Island, SP-3 (SP-3), SP-5 (SP-5). As a result of this processing and comparison of ionospheric data with those on the suns activity, it was established that there is a close relationship between the anomalous absorption of type 3 (T.3) and the appearance of eruption regions on the sun. The duration of T.3 increases with the distance of the eruption region from the central meridian to the east. The corresponding dependence of the absorption duration on the position of the active region with respect to the central meridian is given. In most cases T.3 is accompanied

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by world-wide magnetic storms; these may be delayed by as many as six days with respect to the beginning of absorption, this delay depending on the position of the activity region with respect to the central meridian. In cases when the activity is to the West of the central meridian the magnetic storm may even precede the effect of absorption. All these experimental facts may be explained in the first place by the independence of propagation of charged high energy particles which cause T.3 on the propagation of low-energy plasma responsible for the magnetic storms; in the second place, by the directivity of the low-energy plasma ejection while there is no such directivity in case of high-energy particles. The first assumption contradicts the affirmation of Obayasi and Khakura (RZh Fiz. 1960, 6Zh488), who believe that the high energy particles (10-100 MeV) cannot leave the solar atmsophere on their own, when there is no ionized cloud. A close connection between the occurrence of T.3 and the 11-year solar activity cycle is established. The seasonal dependence of absorption shows that the number of occurrences of T.3 increases between February and September and practically disappears between October and December. The above dependence may be explained by the favorable position of the arctic region

Anomalous absorption of short ... S/194/62/000/006/160/232
D201/D308

with respect to the sun and is similar to the seasonal dependence as observed at high latitude Antarctic stations. [Abstracter's note: Complete translation.]

Card 3/3

9,9842 (1046)

29570
S/033/61/038/004/003/010
E133/E135

AUTHORS: Besprozvannaya, A.S., and Driatskiy, V.M.

TITLE: On the connection between type III absorption and eruptive-active regions on the sun

PERIODICAL: Astronomicheskiy zhurnal, vol.38, no.4, 1961, 611-616

TEXT: A comparison of type III absorption with solar phenomena shows that, in most cases, absorption in the polar caps is observed after large, chromospheric flares which are accompanied by intensive bursts of type IV radio emission (Ref.1: D.K. Bailey, Proc. I.R.E., v.47, no.2, 255, 1959. Ref.2: B. Hultqvist, Tellus, vol.2, no.3, 332, 1959. Ref.3: G.G. Reid and H. Leinbach, J. Geophys. Res., v.64, 1801, 1959. Ref.4: J.Hakura, T. Goh, J. Radio Res. Laboratories, v.6, 635, 1959). In the course of examining data collected during the I.G.Y. (1957-59), the authors noted that radio-bursts and chromospheric flares of similar intensity (3 and 3+) produced very different amounts of ionospheric absorption (blackouts lasted from several hours to several days). It has been pointed out by Reid and Leinbach (Ref.3) that there appears to be a positional asymmetry in the flares which

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On the connection between type III...

are connected with the absorption. Of 18 such flares, 12 appeared west of the central meridian. The authors have analysed the positions of all flares connected with absorption which they have found in their data. They find that there is a close connection between the absorption and large eruptive regions which appear on the sun (i.e. regions containing a large number of flares). An example is the absorption which was observed from 10-24 July 1959. It can be divided into three parts with three corresponding absorption maxima. Each of these occurred some hours after three chromospheric flares (3+) on July 10, 14 and 16. A large eruptive region appeared at the East limb on July 9 and had reached the West limb by the 20th. It produced 76 chromospheric flares (four of intensity 3 and three of 3+). In order to explain all the effects observed, it seems necessary to postulate the production of particles in these regions with an energy of 10^6 - 10^9 eV (e.g. Ref.7: I.M. Gordon, Byul. komissii po issledovaniyu Solntsa, no.10 (24), Izd-vo AN SSSR, L., 1954).

29570
On the connection between type III... S/033/61/038/004/003/010
E133/E135

The intense flares can be thought of as a trigger mechanism which allows the energetic particles, which have collected, to be released. The emission of particles from the sun need not however occur only during solar flares. Favourable conditions may also occur elsewhere in the active region, so that particles can escape without the appearance of a major flare. Examples of such cases are given in Ref.5 (A.S. Besprozvanniya, V.M. Driatskiy, The Study of the Ionosphere. Symposium, No.5, Izd-vo AN SSSR, 1960). It appears that particle emission in the solar atmosphere is connected more with the properties of the active region as a whole than with individual flares.
There are 2 figures, 1 table and 11 references: 4 Soviet-bloc and 7 non-Soviet-bloc. The four most recent English language references (Refs. 1-4) are as quoted in the text above.

ASSOCIATION: Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut (Arctic and Antarctic Scientific-Research Institute)

Card 3/3

SUBMITTED: October 2, 1960

43158
S/203/62/002/003/007/021
I023/I250

AUTHOR: Besprozvannaya, A.S. and Gorbushina, G.N.

TITLE: Charts of space-time distribution of anomalous absorption in the ionosphere, at high latitudes

PERIODICAL: Geomagnetizm i Aeronomiya, v.2, no.3, 1962, 470-475

TEXT: Charts are plotted, which give the frequency of appearance of anomalous absorption of short radiowaves at high latitudes, for different hours of the World Time. Data of ionospheric observations from 31 stations during the IGY were used. The absorption in the auroral zone (type II) and in the polar cap (type III) are investigated separately. It is shown that the isolines of equal recurrence of type II absorption follow Hultqvist's geomagnetic parallels and form an annular zone looking like a horseshoe open on Earth's night side. The region of maximum recurrence of absorption is central at hours before noon. The form of the zone and the daily displacement of the region of maximum frequency of appearance of anomalous absorption, remain the same throughout all seasons. Isolines of equal re-

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Charts of space-time distribution...

currence of type III absorption also follow approximately Hultqvist's geomagnetic parallels in the course of summer. The isolines form ellipses round the geomagnetic pole. The frequency of recurrence of anomalous absorption increases with the latitude. In the course of equinoctial months, when the border of light and shade crosses the polar cap, the absorption is considerably lowere in the shaded ionosphere when intensity of the ionizing agent is equal in shaded and lighted regions. The isolines of equal probability of anomalous absorption are thus deformed and the region of its high frequency has an oval shape, flattened at the Earth's shaded side. It occupies a small part of the polar cap, centered around the noon meridian. A longitudinal asymmetry in the distribution of the frequency of anomalous absorption at high latitudes is revealed, which confirms Longhnan's calculations of the most probable precipitation of particles from the radiation belts. There are 4 figures and 9 references. Most important references: B. Hultqvist, The geomagnetic field lines in higher approximation. Arkiv. geofys., 1958, 3, No.4.

Card 2/3

S/203/62/002/003/007/021
I023/I250

Charts of space-time distribution...

C.J. Loughman. Longitudinal dependence of radiation-belt scattering and primary auroral particles. Planet. Space Sci., 1961, 8, No.1.

ASSOCIATION: Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut (Arctic and Antarctic Research Institute)

SUBMITTED: February 1, 1962

Card 3/3

BESPROZVANNAYA, A.S.

Nature of anomalous nocturnal ionization of the F_2 layer at high latitudes. Trudy AANII 241 no.4:20-27 '62. (MIRA 15:8)
(Polar regions—Ionosphere)

BESPROZVANNAYA, A.S.; GORBUSHINA, G.N.

Charts of space-time distribution of anomalous absorption in the ionosphere over high latitudes. Geomag. i aer. 2 no.3:470-475 My-Je '62. (MIRA 15:11)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.
(Ionospheric radio wave propagation)

S/203/63/003/002/009/027
D207/D307

AUTHOR: Besprozvannaya, A.S.

TITLE: Relationship between disturbances in the F2 layer and the planetary magnetic activity

PERIODICAL: Geomagnetizm i aeronomiya, v. 3, no. 2, 1963, 262-268

TEXT: The relationship referred to in the title is analyzed using the data of 30 Soviet and Western stations located north of 55° of the geomagnetic latitude, obtained between April and September, 1958. The disturbance of the F2 layer was estimated from the deviation of the critical frequencies of this layer from their normal values. It was found that the coefficient of correlation of the magnetic activity index K_p with the F2 layer disturbance varies with time of day and with the latitude. The most representative correlation during the equinoxial months were found in the morning for latitudes north of the auroral zone ($\Phi > 70^{\circ}$) during the day for stations in the auroral zone, and at night for stations at latitudes

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south of this zone. In summer the correlation between K_p and the F2 layer disturbance was highest early in the morning at all latitudes. It is shown that there is a correlation between the planetary ionospheric disturbance, represented by the area occupied by the F2 layer disturbance, and the planetary magnetic activity: the correlation coefficient for the latter two quantities is 0.8 - 0.9. There are 3 figures and 4 tables.

ASSOCIATION: Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut (Arctic and Antarctic Scientific-Research Institute)

SUBMITTED: November 9, 1962

BESPROZVANNAYA, A. S.; GORBUSHINA, G. N.

"Irregular Phenomena and Disturbances in the Polar Ionosphere."

summary to be presented at the 13th Gen Assembly, IUGG, Berkeley, Calif. 19-31 Aug 63.

BESPROZVANNAYA, A.S.

Two types of ionospheric storms. Probl. Arkt. i Antarkt. no.13: 67-78 '63. (MIRA 16:9)
(Magnetic storms)

ACCESSION NR: AT4014041 S/2561/63/000/013/0067/0078

AUTHOR: Besprozvannaya, A.S.

TITLE: Two types of ionospheric storms

SOURCE: Leningrad. Arkticheskiy i Antarkticheskiy n.-i. institut. Problemy* Arktiki i Antarktiki. Sbornik statey, no. 13, 1963, 67-78

TOPIC TAGS: meteorology, ionosphere, ionospheric storm, solar activity, atmospheric turbulence, magnetic storm

ABSTRACT: Ionospheric storms may be divided into storms of the F type and storms of the FD type. Storms of the F type prevail in years of high solar activity, only last 48 hours or less, and do not recur every 27 days. The FD type storms prevail in years of low solar activity, last more than 3 days, and recur every 27 days. The difference between the two types of storms is the same as the difference between two types of magnetic storms — one type with a gradual beginning and the other with a sudden beginning. The F and FD type storms differ not only quantitatively but also qualitatively in the turbulence of the lower

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ACCESSION NR: AT4014041

ionosphere. During the International Geophysical Year, all magnetic storms were studied and recorded in the Journal of Geophysical Research and in the bulletin Kosmicheskiye danny*ye. Statistical analysis shows that in 80% of the cases, the magnetic S_c type storms were followed by ionospheric turbulence of the F-type, while the magnetic G-type storms were followed by FD type storms. The level of turbulence in the lower ionosphere was the basic criterion used to classify storms. The establishment of a connection between the type of magnetic storm and the type of turbulence in the ionosphere is proof of the existence of two types of magnetic storms caused by the effect of two different classes of corpuscular solar emissions. It is natural to suppose that there should be a quantitative difference between the blackout (or polar magnetic turbulences) for both types of storms, related to the different nature of the corpuscular emissions responsible for these storms. Orig. art. has: 1 table and 6 figures.

ASSOCIATION: Arkticheskiy i Antarkticheskiy n.-i. institut Leningrad (Arctic and Antarctic Scientific Research Institute)

SUBMITTED: 19Oct62 DATE ACQ: 10Mar64 ENCL: 00

SUB CODE: ES, AA NO REF SOV: 005 OTHER: 002

Card 2/2

BESPROZVANNAYA, Antenna Semenovna; GORBUSHINA, Galina Nikolayevna; KHRUSTALEVA, N.K., red.; DRIATSKIY, V.M., kand.geogr.nauk, red.

[Morphology of the disturbed ionosphere of high latitudes; according to data of the IGY] Morfologiia vozmushchennoi ionosfery vysokikh shirot (po dannym MGG) Leningrad, Gidrometeor. izd-vo, 1965. 122 p. (MIRA 18:12)

L 43718-66 EWT(1)/EEC GW
ACC NR: AT6023731 (N) SOURCE CODE: UR/2831/65/000/014/0094/0099

AUTHOR: Besprozvannaya, A. S.; Gorbushina, G. N.

ORG: none

TITLE: Irregular phenomena and disturbances in the ionosphere over high latitudes

SOURCE: AN SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. V razdel programmy MGG: Ionosfera. Sbornik statey, no. 14, 1965. Ionosfernyye issledovaniya, 94-99

TOPIC TAGS: E layer, F layer, ionospheric disturbance, solar activity, solar corpuscular radiation, magnetic storm

ABSTRACT: This article presents the results of a statistical analysis of the space-time distribution of the main irregular phenomena in the ionosphere over high latitudes: anomalous absorption, sporadic ionization in the E region, and disturbances of the F2 layer during day and night. Results are also given of an analysis of disturbed periods in the ionosphere. The data used in the article were obtained from vertical soundings at 30 stations situated north of 55° geomagnetic latitude during the IGY, mainly during 1958. The analysis of disturbances in the ionsphere over high latitudes as a complex of phenomena showed that two classes of disturbances can be distinguished. The first is associated with the influx of high-energy

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ACC NR: AT6023731

O

charged particles from the sun (soft cosmic rays with energies of 10—100 MeV). These disturbances begin several hours after an intense solar chromospheric flare (polar-cap type absorption). The second class, ionospheric storm, is observed with the start of a magnetic storm and is associated with the effect on the earth of low-energy solar plasma arriving a day and more after solar disturbances. Magnetic storms, polar auroras, anomalous absorption in the auroral zone, and disturbances in the F2 layer are a consequence of the effect of corpuscular fluxes of this kind on the earth. Disturbances of the first class are observed during years of high solar activity and are absent during years of minimal activity. Ionospheric disturbances of the second class are observed during the entire cycle of solar activity, however, the character of the disturbances appreciably changes in the cycle. During years of high solar activity the predominant ionospheric storms are characterized by a planetary disturbance in the F2 layer without a substantial increase of absorption in the auroral zone. During years of low solar activity the predominant ionospheric storms are characterized by planetary disturbance in the F2 layer with a simultaneous increase of anomalous absorption in the auroral zone. It is possible that the established difference in the character of the currents of ionospheric storms during the cycle of solar activity is due to a difference in the properties of the corpuscular fluxes from the sun during years of high and low solar activity. Orig. art. has: 4 figures.

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 003

Card 2/2 hs

40837-66 EWT(1)/FCC GW

ACC NR: AT6006702 SOURCE CODE: UR/2561/65/000/020/0068/0074

43
B+1

AUTHOR: Besprozvannaya, A. S.

ORG: none

TITLE: Geographic distribution of auroral type absorption based on data of vertical sounding of the ionosphere

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Problemy Arktiki i Antarktiki. Sbornik statey, no. 20, 1965, 68-74

TOPIC TAGS: aurora, ionospheric absorption, light absorption

ABSTRACT: The author investigates the latitudinal dependence of the deviations of polar absorption Δf_{min} from the undisturbed level since it can serve as a relative characteristic of the quantitative change of absorption in the ionosphere. An analysis of the minimal values f_{min} for each month of 1958 based on the data of 28 high-latitude stations showed that for most of the stations f_{min} at all hours, regardless of the season, was close to the lower limit of the frequency range determined by the technical specifications of the equipment. The median values calculated for the 5 lowest values of f_{min} during the month for each hour of the day were taken as characteristic of the undisturbed absorption level. These values all called the

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ACC NR: AT6006702

median of "ionosphere-quiet days" unlike the median with respect to magnetic-quiet days which can differ from the former in the zone of the absorption peak. Using this criteria of the undisturbed absorption level, the author estimates abnormal auroral absorption. Hultquist's corrected geomagnetic latitudes were used to plot Δf_{min}. It was found that the latitudinal dependence of absorption is characterized by two peaks. One of them coincides with the main maximum of the greatest recurrence of anomalous absorption and the other maximum is observed in the latitudinal belt 32—76° (corrected geomagnetic latitude). The characteristics of the main absorption peak and of the second additional peak of auroral absorption are described. The intensity of the former substantially depends upon the level of magnetic activity, whereas the latter has low values regardless of the level of magnetic activity and therefore can be disregarded in calculations. The investigation supported the hypothesis that the second, inner, auroral zone is not a spiral but an oval described by Hultquist's parallels. It is proposed that the main and inner auroral zones are respectively the low-latitude and high-latitude boundaries of drift of this region. Orig. art. has: 3 tables and 4 figures.

SUB CODE: 04 20/ SUBM DATE: 30Oct64/ ORIG REF: 008/ OTH REF: 004

Card 2/2 MLP

ACC NR: AM6012227 (A) Monograph UR/

Besprozvannaya, Antenna Semenovna; Gorbushina, Galina Nikolayevna

Morphology of ionospheric disturbances at high latitudes; based on data from the I. G. Y. (Morfologiya voznushchennoy ionosfery vysokikh shirot; po dannym MGG) Leningrad, Gidrometizdat, 1965, 122 p. illus, biblio. (At head of title: Glavnoye upravleniye gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut) 580 copies printed.

TOPIC TAGS: [redacted] ionosphere, E layer, F layer, ionospheric disturbance, atmospheric ionization

PURPOSE AND COVERAGE: This book describes the morphology of irregular phenomena at high latitudes of the ionosphere. An analysis is made based on data of vertical probing of the ionosphere during the International Geophysical Year at high latitude points in the northern hemisphere. For a study of the relations with other geophysical phenomena and processes on the sun use is made of data from a network of magnetic occurances, knowledge of solar activity and other information. Also shown are the space-time regularities of ionospheric storms and more typical irregular phenomena in the ionosphere at high latitudes (anomalous absorption, sporadic ionization in the E layer, anomalous ionization and disturbances in the F2 layer).

TABLE OF CONTENTS (abridged):

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ACC NR: AM6012227

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SUB CODE: 04 / SUBM DATE: 28Sep65/ ORIG REF: 066/ OTH REF: 077/

Card 2/2

ACC NR: AT7003585 SOURCE CODE: UR/3116/66/280/000/0100/0114

AUTHOR: Besprozvannaya, A. S.

ORG: None

TITLE: Longitudinal anomaly in the mid-day ionization of the F2 layer

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Trudy, v. 280, 1966. Issledovaniya magnitno-ionosfernykh vozmushcheniy i rasprostraneniya radiovoln v Arktike i Antarktike (Studies of magnetic and ionospheric disturbances and radio wave propagation in the Arctic and Antarctic), 100-114

TOPIC TAGS: magnetic anomaly, propagation anomaly, earth magnetic field, ionospheric electron density, F layer, ion distribution

ABSTRACT: One factor making calculations of maximum operating frequencies in communications difficult is the complexity of the geographic distribution of the F2 ionization layer. The anomalies in the F2 layer include the longitudinal, which is less marked if the dependence of mid-day values of f_o F2 is constructed on the basis of geomagnetic latitude, or magnetic deviation, rather than geographic latitude; the latitudinal; and the seasonal. The initial attempts to explain the effects observed by redistribution of electron density in the F2 layer under the influence of the earth's magnetic field proved impossible. The hypothesis suggesting that the

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seasonal anomaly in the F2 layer results from pumping F2 ions along the magnetic lines of force because of temperature differences at the ends of each force line is also applicable to the case of the longitudinal anomaly, is advanced. The most interesting result of this hypothesis is that where diffusion of charged particles takes place along a magnetic line of force, the level of ionization in the F2 layer at any given point in space is determined not only by conditions at the point, but also by conditions at other points along the magnetic line of force crossing through the given point. Orig. art. has: 8 formulas, 4 figures, and 3 tables.

SUB CODE: 04/SUBM DATE: None/ORIG REF: 004/OTH REF: 007

APPROVED FOR RELEASE: 06/08/2000 CIA-RDP86-00513R000205120002-9"

ACC NR: AT7003581 SOURCE CODE: UR/3116/66/280/000/0067/0075

AUTHOR: Besprozvannaya, A. S.

ORG: none

TITLE: The geographic position of the anomalous absorption zone in the Northern Hemisphere

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Trudy, v. 280, 1966. Issledovaniya magnitno-ionosfernykh vozmushcheniy i rasprostraneniya radiovoln v Arktike i Antarktike (Studies of magnetic and ionospheric disturbances and radio wave propagation in the Arctic and Antarctic), 67-75

TOPIC TAGS: solar radiation absorption, aurora, anomalous absorption zone, polar absorption, auroral frequency

ABSTRACT: Three schemes of the geographic position of the polar absorption are analyzed. These schemes are widely used in the determination of the lowest applicable frequency and in recommendations for radio forecasting conditions in the

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upper latitudes. The three schemes are the following: 1) the Menzel scheme characterizes the latitudinal distribution of polar absorption in the period of maximal solar activity and includes both PC and AZ absorption. Inasmuch as the nature and morphological properties of PCA and AZA differ substantially, their influence on short wave communication is also different. Therefore, it is not advised to use the Menzel zone for practical calculations and recommendations; 2) the CRPL scheme characterizes the latitudinal distribution of polar absorption in years of low solar activity and corresponds to AZA. Use of geomagnetic latitudes as coordinates results in an error of 4—5° in the position of the zone in the Eastern Hemisphere; 3) the Kazantsev scheme coincides more closely than the others with the actual absorption zone determined on the basis of ionospheric data. In years of high solar activity, the position of the zone has to be shifted to the south by 2—3°, because the maximum of absorption then occurs 2—3° to the south of the maximal auroral frequency. Orig. art. has: 4 figures and 1 table. [DW]

SUB CODE: 04/SUBM DATE: none/ORIG REF: 010/OTH REF: 012/

BESPROZVANNAYA, A.S.

Spatial variability of F2 layer disturbances. Geomag. i aer. 3 no.2:366-367 Mr-Ap '63. (MIRA 17:2)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

BESPROZVANNAYA, A.S.

Relation between disturbances in the F2 layer and planetary magnetic activity. Geomag. i aer. 3 no.2:262-268 Mr-Ap '63. (MIRA 17:2)

1. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut.

NESMEYANOV, Ye.P.; BESPROZVANNAYA, M.M.; PEL'KIS, P.S.

Diethyl esters of arylazophenoxymalonic acid. Zhur. org. khim. 1 no.11:1963-1965 N '65. (MIRA 18:12)

1. Institut organicheskoy khimii AN UkrSSR. Submitted November 9, 1964.

SOURCE CODE: UR/0366/66/002/007/1213/1220

AUTHOR: Nesynov, Ye. P.; Besprozvannaya, M. M.; Pel'kis, P. S.

ORG: Institute of Organic Chemistry, Academy of Sciences, UkrSSR (Institut organicheskoy khimii Akademii nauk UkrSSR)

TITLE: Preparation of arylhydrazones of diethyl mesoxalate

SOURCE: Zhurnal organicheskoy khimii, v. 2, no. 7, 1966, 1213-1220

TOPIC TAGS: hydrazone, mesoxalate ester, condensation reaction, isomerism, CARBOXYLIC ACID, HYDRAZINE COMPOUND, ISOMER

ABSTRACT:
This work is a continuation of the study of physiologically active aryazocarboxylic acids. Reaction of malonic ester with aryldiazonium salts yields arylhydrazones of diethyl mesoxalate. A reaction by-product consists of diethyl diarylazomalonates. The arylhydrazones were separated

$$(C_2H_5OOC)_2CH_2 + ArN{\equiv}N^+Cl^- \xrightarrow{CH_3COONa} (C_2H_5OOC)_2C{=}NNHAr \quad (I)$$

$$(C_2H_5OOC)_2C(N{=}NAr)_2 \quad (II)$$

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UDC: 547.556.9

SOKOLOVICH, V.B.; OMELYANENOK, I.P.; [illegible]

Determination of copper in ores (about 0.5% content) with a guaranteed accuracy to the second decimal place. Izv.TPI 111:119-123 '61. (MIRA 16:9)

1. Predstavleno professorom doktorom khimicheskikh nauk A.G.Strombergom.

(Copper ores) (Copper—Analysis)

LEL'CHUK, Yu.L.; BESPROZVANNYKH, B.N.

Nephelometric determination of aluminum in the form of cryolite. Izv.TPI 111:59-61 '61. (MIRA 16:9)

1. Predstavleno nauchnym seminarom kafedry analiticheskov khimii Tomskogo ordena Trudovogo Krasnogo Znameni politekhnicheskogo instituta imeni Kirova.
(Aluminum--Analysis) (Cryolite)

SOLOV'YEV,V.V.; BESPROZVANNYY,A.I.

More on combination furniture. Der.prom.4 no.6:7-8 Je '55.
(MLRA 8:10)

1. TSPKB Glavmebel'proma
(Furniture)

ANAN'YEV, V.A.; NARSKIY, S.V.; BESPROZVANNYY, B.K.; NAZARETYAN, Ye.L.; PRISS, I.S.

Experimental study of infectious hepatitis in dogs. Report No.2: Clinical and laboratory findings in infection. Vop. virus. 5 no.4: 468-473 Je-Ag '60. (MIRA 14:1)

1. Institut virusologii imeni D.I. Ivanovskogo AMN SSSR, Moskva.
(HEPATITIS, INFECTIOUS)

ANAN'YEV, V.A.; BESPROZVANNYY, B.K.; NARSKIY, S.V.

Unusual strain of hepatitis virus in dogs. Vop. virus 5 no.4: 473-478 Je-Ag '60. (MIRA 14:1)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.
(HEPATITIS, INFECTIOUS)

SHUBLADZE, A.K.; BARINSKIY, I.F.; BESPROZVANNYY, B.K.; ANAN'YEV, V.A.; VANAG, A.I.

Use of comparative virology methods in studying virus hepatites. Report No.1: Study of virus accumulation dynamics in the organs of experimentally infected animals. Vop. virus. 10 no.4:467-473 Jl-Ag '65. (MIRA 18:8)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.

STEPURO, N.T.; TIMOFEYEV, A.A.; YUDINTSEV, D.A.; BESPROZVANNYY, G.S.

Surfacing with precast concrete. Avt. dor. 27 no. 3:23-25 Mr '64.
(MIRA 17:5)

BESPROZVANNYY, I.A.

UGORETS, I.I.; LAVRENENKO, K.D.; BONDAREV, N.M.; PLATONOV, N.A.; ACHKASOV, D.I.; MKHITARYAN, S.G.; SAVINYKH, A.I.; MALYUTIN, I.P. VLADIMIROV, P.N.; MOSKOVSKIY, F.A.; GEL'FAND, M.Z.; KARAVAY, N.M. BESPROZVANNYY, I.A.; KIKINA, M.I.; TRETNIKOVA, Ye.M.

Nikolai Nkolaevich Romanov; obituary. Elek.sta. 27 no.4:63 Ap '56. (MLRA 9:8)

(Romanov, Nikolai Nikolaevich, 1906-1956)

STEKLOV, V.Yu.; BORULYA, V.L., red.; BESPROZVANNYY, I.A., red.; BORUNOV, N.I., tekhn.red.

[Development of power engineering in the U.S.S.R.; chronological history] Razvitie elektroenergeticheskogo khoziaistva SSSR; khronologicheskii ukazatel'. Moskva, Gos.energ.izd-vo, 1959. 115 p. (MIRA 13:2)

(Power engineering)

SAPOZHNIKOV, M.A.; SUSLOV, A.M.; BESPROZVANNYY, B.K. (Moskva)

Macrofollicular lymphoblastoma of the gastrointestinal tract.
Arkh. pat. 22 no. 10:65-71 '60. (MIRA 13:12)

1. Iz patologoanatomicheskogo otdela (zav. - prof. A.V. Smol'yannikov) Nauchno-issledovatel'skogo instituta imeni N.V. Sklifosovskogo (dir. - zasluzhennyy vrach USSR M.M. Tarasov).
(DIGESTIVE ORGANS--TUMORS)

BESPROZVANNYY, I.G.; KHOTINSKIY, Ye.A.

On designing secondary switching circuits for bus bar switches.
Energ. biul. no.1:25-28 Ja '58. (MIRA 11:1)
(Electric transformers)

AUTHOR: Besprozvannyy, I.G. SOV-90-58-8-6/9

TITLE: A Relay for an Insulation-Checking Signalling Device for AC Circuits (Rele dlya signalizatsii kontrolya izolyatsii setey peremennogo toka)

PERIODICAL: Energeticheskiy byulleten', 1958, Nr 8, pp 18 - 19 (USSR)

ABSTRACT: The relay described is part of a device for giving an audible warning signal of any change in the state of the insulation of an a.c. circuit in factory substations. Three star-connected voltmeters wired into the a.c. mains circuit represent a zero sequence voltage filter (fig.1). The relay is constructed from an E-30 a.c. voltmeter and connected to the neutral point of the voltmeters. An ES-21 signal relay is then connected to its contacts and set to operate an audible warning signal on the lighting panel. The first relay is adjusted to trip at the zero sequence voltage caused by the

Card 1/2

A Relay for an Insulation Checking Signalling Device for AC Circuits

burning out of one of the phase fuses. In the editorial note to the article some standard relays are listed which can be used for this purpose without the necessity of constructing one from an old voltmeter. There is 1 wiring diagram, 1 diagram and 1 table.

1. Circuits--Insulation--Test methods 2. Relays--Applications

Card 2/2

BESPROZVANNYY, I. G.

AUTHOR: Besprozvannyy, I.G., Engineer SOV-91-58-9-3/29

TITLE: Connecting Leads to High Voltage Equipment (K voprosu o podklyuchenii oshinovki k apparatam vysokogo napryazheniya)

PERIODICAL: Energetik, 1958, Nr 9, pp 8-10 (USSR)

ABSTRACT: Much high voltage apparatus is fitted with threaded copper rods which serve both as an electrical contact, hold the object together and can be used for attaching the apparatus to its base. If the lead is fixed directly onto the rod by means of nuts, damage may result through excessive tightening, thus stripping the thread, or by distorting and twisting the rod, which could lead to oil leaks and lack of insulation inside the porcelain body. Some alternative types of contacts are illustrated and described. The contact assembly should not be combined with the fixing device but should be long-lasting and capable of standing up to repeated attachments of the lead; copper is therefore not a very suitable material. The device used for the mechanical fixing of the contact to the lead should not carry current and should be easily replaceable in case it wears out. Standard steel nuts and bolts could be used. There is 1 set of diagrams.

1. Electrical Equipment--Design 2. Connectors (Electric)--Design

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8 (6), 9 (2) SOV/91-59-11-17/27

AUTHOR: Besprozvannyy, I.G., Engineer

TITLE: The Modernization of the Contact Cap of an Oil-Filled Lead-In Insulator for Obtaining Oil Samples

PERIODICAL: Energetik, 1959, Nr 11, pp 25-27 (USSR)

ABSTRACT: The author describes a modification of the contact caps of high-voltage (110 kv and higher) lead-in insulators for obtaining oil samples. This modification was introduced at one district substation of the Rostovenergo power distribution system. According to Par 969 of the "Rules for Operating Power Plants and Substations", it is necessary to check the oil of the oil-filled lead-in insulators on circuit breakers of 110 kv and higher once within 12 months. This is a rather time-consuming procedure, since the contact cap must be removed for inserting the syphon hose. Many insulators are found without any provisions for collecting oil samples. Therefore, the author suggests installing a plug at an angle of 45° to the insula-

Card 1/2

The Modernization of the Contact Cap of an Oil-Filled Lead-In Insulator for Obtaining Oil Samples

tor axis, as shown in Figs 1 - 3. The upper edge of the contact cap is cut at an angle of 45° to provide the necessary surface. A hole is drilled into the center of this surface and a thread is cut for an M-12 plug with a rubber gasket. There are 3 diagrams.

BESPROZVANNYY, I.G.

New special power register is needed for a.c. electric locomotives. Elek.i tepl. tiaga no.7:31 Jl '60. (MIRA 13:8)

1. Nachal'nik elektrotyagovoy laboratorii Novocherkasskogo elektrovozo-stroitel'nogo zavoda.
(Electric locomotives) (Watt-hour meter)

BESPROZVANNYY, I.G., inzh.

Induction heater for the NSM-3 oil purifier. Energetik 8 no.2:21 F '60. (MIRA 13:6)
(Oil reclamation--Equipment and supplies)

ALIKIN, R.I.; GORDIYENKO, P.I.; BESPROZVANNYY, I.G.; ZHIBTSOV, P.P.; ZOLOTAREV, P.A.; ZUSMANOVSKAYA, L.L.; IBRAGIMOV, K.G.; KOZOMEZOV, M.A.; KOKOREV, A.I.; KUPRIANOV, Yu.V.; KUROCHKA, A.L., kand. tekhn. nauk; LITVINOVA, L.M.; LOZANOVSKIY, A.L., kand. tekhn. nauk; MAVDRIKOV, F.I.; MAKHAN'KOV, L.V.; PUKALOV, V.I.; RAYLYAN, A.F.; SVERDLOV, V.Ya.; SKLYAROV, B.S.; SOLOV'YEV, K.M., kand. tekhn. nauk; STUKALKIN, A.N.; SUROVIKOV, A.A.; TIKHONOV, N.G.; SHTEPENKO, P.K.; YANOV, V.P.

[VL80 electric locomotive.] Electrovoz VL80. Novocherkassk. Nauchno-issledovatel'skii institut elektrovozostroeniia. Sbornik nauchnykh trudov, vol. 5) (MIRA 18:5)

[redacted], Yu.N.; BEZPROZVANNYY, I.P.

Mass studies of the nature of the Altai. Izv. Vses. geol. Geog. obshch. SSSR no.5:207-208 '65. (MIRA 18:12)

1. Gorno-Altayskiy pedagogicheskiy institut.

BESPROZVANNYI, IZRAIL'MOISEEVICH.

Fizicheskie osnovy ucheniia o rezanii metallov. Moskva oborongiz, 1941. 241 P. illus., diagrs. Bibliography: P. (218).

DLC: TJ1230.B4

(Physical fundamentals of metal-cutting studies.)

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

BESPROZVANY, I. M.

High-Speed and Super-Speed Cutting of Metals. I. M. Besprozvany, A. N. Danielian, A. V. Pankin, and N. I. Reznikov. (Vestnik Inzhenerov i Tekhnikov, No. 2, 1946, pp. 65-73.) The Engineers' Digest, Vol. 3, No. 11, November, 1946, pp. 565-567, figs. 7 references. (An abridged translation.)

CHUDAKOV, Ye.A., akademik, glavnyy redaktor; AKOPOV, S.A., redaktor; ARTOBOLEVSKIY, I.I., redaktor; ACHERKAN, N.S., redaktor; BEZPROZVANNYY, I.M., redaktor; GUDTSOV, N.T., redaktor; DIKUSHIN, V.I., redaktor; YEFREMOV, A.I., redaktor; ZAPOROZHETS, V.K., redaktor; ZIMIN, A.I., redaktor; KAZAKOV, N.S., redaktor; KIRPICHEV, M.V., redaktor; KOVAN, V.M., redaktor; KONYUSHAYA, Yu.P., redaktor; LIPGART, A.A., redaktor; MALYSHEV, V.A., redaktor; MARTENS, L.K., redaktor; MARIYENBAKH, L.M., redaktor; NIKOLAYEV, G.A., redaktor; ODING, I.A., redaktor; PATON, Ye.O., redaktor; RAMZIN, L.K., redaktor; RUBTSOV, N.N., redaktor; SAVERIN, M.A., redaktor; SEMENCHENKO, I.I., redaktor; SERENSEN, S.V., redaktor; SHAMNI, N.A., redaktor; SHELEST, A.N., redaktor; SHUKHGAL'TER, L.Ya., zamestitel' glavnogo redaktora, redaktor; YAKOVLEV, A.S., redaktor.

[Machine construction encyclopedic handbook] Mahinostroenie; entsiklopedicheskii spravochnik. Part 1. [Engineering calculations in machine construction] Inzhenernye raschety v mashinostroenii. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, Vol. 1. no.1. 1947. 548 p.
(Mechanical engineering) (MLRA 8:I)

BESPROZVANNYI, IZRAIL'MOISEEVICH.

Osnovy teorii rezaniia metallov. Moskva, Mashgiz, 1948. 391 p. illus.

(Fundamentals of a theory of metal cutting.)

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

BESPOZVANNYY, I. M.

36700. Intensivnost' Iznosa i Stoykost' Rezhushchego Instrumenta. Sbornik Trudov Tbilis In-Ta Inzhenerov Zh-D, Transporta Im Lenina, XVII-XVIII, 19.8, s 1-11.

SO: Letopis' Zhurnal'nykh Statey, Vol. 50, Moskva, 1949

BESPROZVANNYY, I. M. ~~PROF~~ PA 62T32

USSR/Engineering Mar 1948
Tools, Cutting
Stability, Structural

"Intensity of Wear and the Durability of Cutting Instruments," Prof I. M. Besprozvannyy, Dr Tech Sci, Laureate of Stalin Prize, 6½ pp

"Vest Mash" No 3

Gives method of estimating durability of cutting instruments based on the initial degree of wear of the tool. It is also possible to determine the quality of the material of the cutting instrument. Further study is desired to establish optimum cutting speeds at which cutting instruments would give optimum service.

62T32

BESPROZVANNYI, IZRAIL'MOISEEVICH.

Rezanie metallov v otechestvennoi nauke. (Vest. Mash., 1948, no. 6, P. 59-63)

DLC: TJ1230.D3

(Metal cutting in the Soviet Science.)

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

KORENEV, V.; KALESHIN, A.; BESPROZVANNYY, L.

Increasing hourly output during the shortened workday. Sots. trud no.3:95-104 Mr '58. (MIRA 13:3)

1. Nachal'nik planovogo otdela shakhty "Kochegarka," Donbass (for Korenev). 2. Direktor Minskogo stankostroitel'nogo zavoda im.Voroshilova (for Kaleshin). 3. Nachal'nik otdela truda i zarplaty Minskogo stankostroitel'nogo zavoda im. Voroshilova (for Besprozvannyy).
(Ukraine--Hours of labor) (Ukraine--Labor productivity)

BESPROZVANNYY, L.

Bonus system for hourly workers in a mechanical repair shop. Sots.trud 4 no.9:116-118 S '59. (MIRA 13:1)

1. Nachal'nik otdela truda i zarabotnoy platy Minskogo stankostroitel'nogo zavoda im. Voroshilova.
(Minsk--Machine-tool industry)

BESPRIZVANNYY, M. A.

"The Reaction of Telomerization Between Ethylene and Carbon Tetrachloride," by G. V. Ovakimyan, M. A. Besprizvannyy, and A. A. Beyer, Candidate of Chemical Sciences, Khimicheskaya Nauka i Promyshlennost', Vol 2, No 1, Jan/Feb 57, pp 13-19

The telomerization reaction

$$nCH_2 = CH_2 + CCl_4 \xrightarrow{\text{initiator}} Cl(CH_2CH_2)_n CCl_3$$

is described on the basis of data given by R. Joyce, W. Hanford, and J. Harmon (Journal of the American Chemical Society, Vol 70, 1948, p 2528; US Patent No 2440800, 1948; Chemical Abstracts, Vol 42, 1948, p 6373), who discovered this reaction. Results obtained by Joyce and others and other American investigators are compared with those obtained in research done in the USSR at the Institute of Organoelemental Compounds, Academy of Sciences USSR, and the State Institute of the Nitrogen Industry. The initiation of the telomerization process by radiation from Co^{60} is discussed by the authors on the basis of results obtained in their own experimental work. (U)

SUM. 1391

BEER, A.A.; BESPROZVANNYY, M.A.

Certain laws governing the distribution of individual compounds in a mixture of telomers. Khim.nauka i prom. 4 no.4:547-548 '59.
(MIRA 13:8)

1. Gosudarstvennyy institut azotnoy promyshlennosti.
(Polymerization)

BESPROZVANNYY, M. A., Cand Chem Sci -- (diss) "Research into telomerization reaction of ethylene and carbon tetrachloride." /Moscow, 1960/. 14 pp; (State Scientific Research and Design Inst of Nitrogen Industry and Products of Organic Synthesis); 150 copies; price not given; (KL, 27-60, 148)

EYDUS, Ya.T.; NEFEDOV, B.K.; BESPROZVANNYY, M.A.; PAVLOV, Yu.V.

Catalytic hydrocondensation of carbon monoxide with olefins and their hydropolymerization under the effect of carbon monoxide and hydrogen. Report No.39: Activity of rhodium-based catalysts. Izv. AN SSSR. Ser. khim. no.7:1160-1169 '65. (MIRA 18:7)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.